QK176
.N87
1848

ART. XIII.—*Descriptions of Plants collected by William Gambel, M. D., in the Rocky Mountains and Upper California.* By THOMAS NUTTALL.

*GAMBELIA.†

Natural order, SCROPHULARINÆ. Tribe ANTIRRHINEÆ.

Calyx 5-parted, nearly equal. Corolla hypogynous, the tube cylindrical, saccate at the base, orifice narrowly pervious, the border bilabiate, the palate rather prominent, smooth; upper lip erect, the lower spreading, all the segments nearly equal and oblong. Stamina four, arising from the base of the corolla tube, included, didynamous: no sterile filament: anthers bilocular, oblong. Ovarium bilocular, with many ovules, seated upon a glandular torus. Style simple, clavate, entire. Capsule subglobose, 2-celled, opening below the summit by two or three irregular apertures. Seed, [not seen.]—A spreading bush, with verticillate, entire, coriaceous leaves, and axillary and terminal conspicuous scarlet flowers. Allied to *Galvezia*, but with a prominent palate and a saccate spur at the base of the corolla.

G. SPECIOSA.

A bush about three to four feet in height, full of bright scarlet flowers. The older branches covered with a smooth grey bark, all of them cylindric. The younger branches, leaves and flowers more or less hairy, with a soft pubescence. Leaves rather small, coriaceous, ternate, verticillate, and apparently evergreen, with a few obscure reticulated vessels running over the under surface; their form oblong, rather obtuse, entire and attenuated at the base into a short peduncle: there are no stipules or bractes, though the leaves diminish to a very small size as the terminal inflorescence advances. Length of the leaves about one and a half inches, the breadth about half an inch. Peduncles axillary by threes, shorter than the lower leaves. Calyx unequal, 5-parted, the segments linear-lanceolate. Corolla about an inch in length and tubular, with a conspicuous saccate spur at the base; the border personate, the lower lip 3-lobed, with a somewhat prominent smooth palate; upper lip 2-lobed, somewhat erect, and deflected at the sides. Stamens didynamous, arising from the base of the tube, the pairs a little unequal, the filaments with a chaffy down at the base. Style a good way shorter than the corolla, gradually clavate above and perfectly entire, and a little curved at the summit: a glandular torus round the base of the germ. Capsule subglobose, hirsute, two-celled, opening below the summit by two or three irregular roundish foramina; the placenta attached chiefly to the centre of the dissepiment. The imperfect seeds appear to be narrow and angular, but the perfect seed I have not seen.

†In honor of Dr. William Gambel, a naturalist who has explored Upper California, and particularly elucidated the ornithology of that country,

Though so different in habit yet closely allied to *Antirrhinum;* the tubular corolla, smooth palate, and entire stigma, being nearly all that distinguishes it from that genus; the seed may also prove different, but that is at present unknown. It is a plant highly worthy of cultivation, and flowers very early in the spring.

Hab. In the island of Santa Catalina on the coast of California. Flowering in the month of February.

*CROSSOSOMA.†

Calyx 5-leaved, imbricated, somewhat coriaceous and persistent, the leaves unequal and concave, with colored margins. Corolla of five subsessile, oval petals. Stamina perigynous, about twenty-five on a fleshy disk; anthers adnate. Ovaries two to five, united at base into a short stipe, 1-celled; ovules many, attached to the ventral suture in a single crowded series. Stigmas thick and sessile, recurved. Capsules two to five, coriaceous and cylindric, opening longitudinally and inwards, many-seeded. Seed roundish-reniform, nearly surrounded by a deeply fringed arillus. Embryo not seen.—A California shrub, with alternate, entire, crowded, exstipulate leaves, and 1-flowered, short, terminal branchlets; flowers white.

C. CALIFORNICA.

A tortuous shrub, about four feet high, with a hard whitish wood. The bark light grey and very bitter, while the wood and leaves possess very little taste. Leaves entire, cuneate-oblong, and small, somewhat coriaceous, smooth, apparently evergreen, obtuse, or acutely terminated with a small cartilaginous point; the nervures few and somewhat reticulated: one to one and a half inches long, by about half an inch broad. Flower branchlets, resembling peduncles, about two inches long, with two leaves towards the base. The flower, a white Piony in miniature, and about the size of an apple blossom. The calyx of five concave, somewhat coriaceous, persistent leaves, with white petaloid thin margins. Petals five, white, oval, with short claws, seated, as well as the stamens, on the thickened disk of the calyx. Stamina about twenty-five, persistent nearly with the ripening capsules; filaments a little longer than the linear, adnate anther, anthers, 2-celled, opening lengthways. Carpels two, three, four, rarely five, coriaceous. Stigmas thick, sessile, and recurved. Capsules recurved, coriaceous, turgid, united at the base, free above, and divaricate, one-half to three-fourths of an inch in length. Seeds very numerous, pale testaceous, roundish-reniform, smooth and somewhat compressed, so nearly covered with a copious fringed arillus, as to appear almost packed in tow; the cavity of the testa being curved, indicates probably the form of the embryo.

After examining many of the seeds, I find the rigid coriaceous testa, in every instance empty, so that the nature and character of the germ remains unknown, and the real affinities of this curious plant are therefore uncertain. It is probably *Polygamous dioicus,* as the stamens appear destitute of pollen.

† From κρασσος *fringe,* and σωμα *a body;* in allusion to the fimbriate arillus.

From any affinity yet discoverable, this curious plant may well form a sub order CROSSOSOMEÆ, with the æstivation of the coralline calyx imbricate, its base occupied by a fleshy disk. Stamina indefinite. Ovaries three to five, verticillate, cohering at the base into a common stipe; ovules very numerous, pendulous. Capsular follicles tardily dehiscent, many-seeded: the hylum surrounded by a large fringed arillus.

HAB. Abundant on the borders of streams in the island of Catalina, off the coast of Upper California. Flowering in February.

TRIFOLIUM.

T. §. *PHYSANTHA. (*Involucrarium.*) With the calyx 5-cleft, one or two of the divisions smaller. Corolla marcescent. The vexillum transformed into a physiform sac, which at length envelopes the very small wings and monopetalous carina. Stigma capitate. Legume stipitate, two to five-seeded, included in the calyx.

T. *STENOPHYLLUM. Annual, branching from the base; leaves ternate, smooth and linear, distantly serrulate; stipules subulate, sparingly denticulate; peduncles elongated, filiform. Heads small and nearly round, the vexillum, at length, forming a membranous inflated sac of equal breadth throughout, embracing the small wings and small carina, which is monopetalous, with but one broad claw attached to the vexillum.

With all the aspect of the involucrate clovers. Flowers brownish, the keel deeper coloured. Stamens diadelphous. Pod stipitate, flat, two-seeded, seeds obcordate. Stigma small, capitate. About four to six inches high: leaves about one or two lines wide.

HAB. The island of Santa Catalina, and San Pedro, Upper California. Flowering in February.

T. *GAMBELII. Perennial and decumbent, smooth, branching from the base; leaflets roundish-oval or cuneate-oval, obtuse, very minutely and sharply serrulate; stipules membranaceous, dilated, entire, with subulate, slender points; peduncles about the length of the leaves; involucrum about 8-cleft, the segments lanceolate, acuminate; teeth of the calyx trifid, or simple, with setaceous points; legume stipitate, three to five-seeded; wings longer than the vexillum.

A large, robust species, with shortish branches, very large stipules, and heads of large flowers, which appear to have been whitish, with purple tips to the carina; heads of flowers one to one and a half inches across; the vexillum very wide below; so as to conceal the other petals; the wings and carina are also united: leaflets three quarters of an inch long, and about the same breadth.

HAB. Island of Catalina, St. Simeon, and Pueblo de los Angeles.

T. *CILIATUM. ⊙. Smooth and erect, but little branched; lower leaves on very long petioles; leaflets cuneate-elliptic or oblong, obtuse, minutely and sharply serrulate; bractes adnate, subciliate, herbaceous, entire and acutely acuminate; capituli axillar and terminal, rounded, many-flowered, destitute of involucrum, but subtended by a cicatrised circle of points; the flowers attached to a cylindric torus, often ending in a long subulate point beyond the capitulum; segments of the calyx unequal, one of the teeth small, the rest lanceolate, sharply acuminated and bristly ciliated with stiff hairs; vexillum enclosing the other petals, which are small; legume flat, stipitate, about one-seeded.

Stipules herbaceous; the leaves rather thick and strongly veined, with forked vessels; calyx nearly the length of the ochroleucous flower. This is again a PHYSANTHA, but without a proper involucrum.

HAB. Pueblo de los Angeles, Upper California.

T. *DENUDATUM. ⊙. Smooth, stem erect, a little branched, lower leaves on very long petioles; leaflets obcordate or oboval, minutely and sharply serrulate; stipules membranaceous, entire and setaceously acuminated; capituli axillar and terminal, rounded, many-flowered, without an involucrum, but with a cicatrised circle in its place, the flowers attached to a conic torus of the same structure; segments of the calyx subequal, linear-lanceolate, sharply acuminated, nearly the length of the small ochroleucous flower; pod stipitate, about two-seeded.

About a span high; a rather small annual, and very smooth in every part. Leaflets about three-quarters of an inch long, three to four lines wide. Flowers small, with the teeth of the calyx very long and conspicuous.

HAB. With the above, which it much resembles, but the vexillum is not unusually inflated.

T. *DIVERSIFOLIUM. ⊙. Small and smooth, branching from the base; leaflets linear or oblong, obtuse, perfectly entire, or repandly and rather sharply serrulate towards the apex; stipules nearly entire, with subulate points; peduncles longer than the leaves; heads very small, eight to ten-flowered; involucrum six to eight-parted, the divisions entire, ovate, obtuse; calyx nearly half the length of the short flowers, the teeth simple and acute; legume two-seeded.

Remarkable for the diversity of its foliage, some of the leaflets being linear and quite entire, others with the same slightly serrulate; in other plants they are cuneate-oblong, and even emarginate. The plant about a span high, with reddish flowers and a deep purple tipped carina.

HAB. Near St. Simeon, Upper California.

ASTRAGALUS.

A. §. MICROLOBIUM. Annual or perennial? Flowers various. Legume small, scarcely exserted beyond the calyx, one-seeded.

A. *CATALINENSIS. ⊙. Nearly erect and much branched; stipules ovate, distinct, leaflets linear, deeply emarginate, five to seven pair, as well as the stem, scattered with appressed hairs; flowers ochroleucous, in capitate heads; segments of the calyx subulate, obtuse, thickly clad with rough white and black hairs, the segments all inclined to the lower side; legume scarcely exserted, scabrous.

A very distinct species, much branched from the base and rather decumbent. The leaves smooth, narrow, and deeply emarginate, petioles about an inch long. Peduncles often exceeding the leaves, terminating in short, oval, dense spikes or heads, of nearly sessile small flowers, scarcely exserted beyond the calyx, deeply divided, and thickly clothed, almost hidden under a mass of rough black and white hairs, the segments subulate, but appearing obtuse with a tuft of hairs, very soon dividing above nearly to the base; bractes minute; vexillum oval, with a broad embracing claw; wings small and obtuse as well as the keel. The legume scabrous, oval, obtuse, dark grey, with a deep introflected suture, the cells one-seeded, the seed obcordate. Style slender, stigma capitate.

HAB. On the island of Catalina, in Upper California. Flowering in February.

A. *NIGRESCENS. Annual; nearly erect and much branched; stipules ovate, acuminate; leaflets cuneate-linear, deeply emarginate, nearly smooth; flowers ochroleucous, in short oval spikes, at length nodding; segments of the calyx subulate, acute, clothed with shortish black hair; legume ovate, acute, and villous, a little exserted; cells one-seeded.

HAB. With the above, which it greatly resembles, but different in the calyx and pod; flowers less crowded and pedicellate, the calyx not so deeply divided, nor clothed with such long rough hairs; bractes minute, chaffy, subulate: stipules partly united at the base.

PHLOX.

P. *BRYOIDES. Densely cæspitose, very small; leaves closely imbricated in four rows, the ciliar pubescence extending beyond the points of the oblong-lanceolate, very acute short leaves; flowers scarcely exserted; segments of the calyx obtuse; those of the corolla cuneate, entire.

Nearly allied to *P. muscoides*, but distinguishable by forming separate imbricated branchlets, and by the leaves being so short as to be buried in the down of the margins of the leaves.

HAB. On the dividing ridge of the Rocky Mountains. (Nuttall.)

P. *NANA. Dwarf and many-stemmed; viscidly pubescent; leaves rather long and linear, acute, the upper ones alternate; peduncles few, from the terminal branches, and as well as the calyx pilose; flower exserted, with the tube twice the length of the calyx sexments; border of the corolla longer than the tube, segments cuneate, emarginate.

Flower large and red. Stems many from the same perennial root, four to five inches high; the lower leaves one and a half inches long, from one to two lines wide, quite flat, and more or less clothed with a small glandular pubescence. Flowers few, and as large as any in the genus, segments of the calyx linear and acute; the tube of the corolla about twice its length. Corolla more than an inch across. Cells of the ovarium two-seeded.

HAB. Rocky Mountains, near Santa Fé.

POLEMONIUM.

P. *VISCOSUM. Dwarf; every part covered with a short, viscid pubescence; leaves nearly as long as the short flower stems, segments rounded, ovate or subcordate, very small and short; flowers in small terminal clusters; corolla much longer than the elongated lanceolate segments of the calyx; ovaries two or three in each cell.

Stems thickish and rigid, somewhat cæspitose. About four or five inches high, the leaves on longish petioles. The leaves and calyx covered with a short viscid bitter pubescence, leaflets scarcely more than a line long, about the same breadth. Calyx large, with lanceolate rather acute segments.

HAB. On rocky ledges towards the sources of the Platte. Flowering in June. (Nuttall.)

GILIA.

G. *MULTIFLORA. Biennial, erect and much branched from the base; stems low and pubescent; leaves pinnatifid, mostly trifid, segments narrow linear and mucronulate, above simple; flowers disposed in sessile or pedicellate axillary clusters; tube of the corolla about twice the length of the curved calyx; the segments of the corolla oblong and mucronulate; stamens somewhat exserted.

A biennial, about a foot high, or rather less. The leaves apparently thick and slightly pubescent, the lower ones only trifid, the upper or greater number simple, the primary leaves probably pinnatifid. Flowers violet blue, inclining to rose red, the tube of the corolla about twice the length of the calyx, enlarging towards the orifice, segments of the border oblong, spreading, minutely mucronulate. Stamens exserted beyond the orifice of the tube, unequal in length, anthers round. Style long and slender, with a small trifid stigma. Flowers disposed in clusters of from five to ten up the greater part of the simple branches, some of the clusters sessile. Calyx obconic-campanulate, membranaceous between the teeth, which are long, subulate, and pungent. Capsule oval, not exserted, cells four to five-seeded. Seeds angular, pale brown. Allied apparently to *G. glomeriflora*, but that appears to be a low shrub with orange coloured flowers.

HAB. Sandy hills along the borders of the Rio del Norte, New Mexico. Flowering in August.

G. LONGIFLORA. (*Cantua longiflora*, Torrey.) Found abundant in sandy places along the banks of the Rio del Norte, growing beneath the shade of pine trees. Flowering in August and September. A very remarkable and showy plant with white flowers. Very few of the leaves are properly pinnatifid, being mostly trifid, a few with two pair of segments. Tube of the corolla often as much as two inches long. Leaves mostly trifid.

§. *Allophyllum. Annual. Leaves dissimilar and broad, obscurely three to five-parted, with distinct partial petioles. Stem diffusely branched, the flowers small, partly funnel-form, disposed in cymose racemes. Capsule oval, the cells two-seeded; the seeds roundish, not angular. Closely allied to *Collomia*, but with the cells of the capsule two-seeded.

G. *divaricata. Annual, diffusely branched and subdecumbent, viscidly puberulous; leaves alternate, digitately united at the base; leaflets three to five, lanceolate acute, attenuated into a petiole, two or four much smaller than the others; branches forked, ending in cymose racemes; calyx obconic, divided nearly to the base, enlarging with the ripening of the fruit; the segments lanceolate acute, viscid; corolla small and slender, the tube more than twice the length of the small calyx; segments of the border oblong; stamens somewhat exserted, anthers roundish, stigma small. Capsule oval, not extending beyond the short enlarging calyx; seeds roundish, teeth two in a cell, rather large.

Hab. Monterey, Upper California.

§. *Chrysantha. Annual, pubescent. Leaves sessile, opposite, palmately divided, with entire linear segments. Flowers fastigiate, somewhat corymbose on filiform peduncles, (yellow) segments of the calyx acute. Corolla funnel-form, with a short tube, the segments oval and entire. Anthers ovate. Stamens exserted beyond the throat of the corolla. Ovules in the capsule about twenty.

G. *aurea. Corolla smooth, about twice the length of the calyx; segments of the leaves short and hispid, three to six.

A handsome and showy annual, growing about a span high, with short, hispid, opposite sessile leaves, divided into five or six segments below, above about 3-cleft. Stem mostly simple and branching above, the flower branches purplish and a little viscid, terminating in compound trichotomous clusters; peduncles slender, often near an inch long. Flower apparently bright yellow, as large as that of many *Phloxes*, funnel-formed, with a tube not exserted beyond the calyx, its base purple. The calyx segments united two-thirds of the way, the teeth lanceolate and acute; stigmas exserted, long and filiform; seeds about twenty in each capsule, when moistened covered with a jelly as in *Collomia*.

Hab. Santa Barbara. Flowering in April.

§. *Elaphocera. Perennials or biennials, with the leaves often sparingly pinnatifid towards the extremity, or entire and linear, fleshy. Flowers in condensed clusters, capitate or in spikes, generally white. Corolla tubular, with a deeply 5-cleft, spreading border. Stamens shortly exserted, or even with the summit of the tube. Stigmas very short. Ovaries two to four in a cell, rarely one.

G. congesta. (Hooker.) Common in the Rocky Mountain region.

G. *CREBRIFOLIA. Perennial and branching from the base; leaves entire, linear, acute and fleshy, smooth, crowded so as to conceal the stem; flowers in capitate clusters; stamens exserted to the length of the corolla segments.

HAB. Big Sandy Creek of the Colorado of the West. Flowering in July. (Nuttall.)

G. *SPICATA. Perennial; leaves linear, fleshy; flowers in clusters, spiked; stem and calyx lanuginous, segments of the calyx linear acute and viscid; tube of the corolla exserted; stamens at the summit of the tube.

HAB. On the hills near Scott's Bluffs of the Platte. Flowers white, segments oblong. (Nuttall.)

G. *TRIFIDA. Biennial; radical leaves linear; cauline trifid towards the extremity, fleshy and smooth; flowers clustered in spikes; stem and calyx pubescent, segments of the calyx linear and very acute; tube of the corolla exserted; stamens at the summit of the tube.

HAB. With the above, which it greatly resembles, except in the leaves; cells of the capsule each with three or four ovules. About a span high. (Nuttall.)

G. *PUMILA. Perennial? branching from the base; flowers in terminal clusters, subtended by long leaves, woolly at their base; leaves fleshy, trifid at the extremities; segments narrow, linear, spinulose at points; corolla small, the tube exserted; stamens extending a little beyond the orifice of the tube.

Three or four inches high, with a few slender branches, the leaves nearly all at the summits of the branches beneath the flowers, an inch to one and a half inches long.

HAB. Near the first range of the Rocky Mountains of the Platte. Flowering in May. (Nuttall.)

G. (*Collomioides*) *FILIFOLIA. ⊙. Erect and rigid; stems smooth below, nearly simple; leaves mostly trifid; the segments setaceous and rigid; capituli corymbose and whitely woolly; tube of the corolla about the length of the calyx; segments of the border lanceolate; stamens shorter than the corolla.

Six to eight inches high, slender and rigid. Flowers small and blue, clusters or heads of flowers both axillar and terminal.

HAB. Near Santa Barbara, Upper California.

LEPTOSIPHON.

L. *BICOLOR. Branching from the base; leaves three, five to seven-cleft, the lowest much shorter; lower segments oblong-linear, cuneate, the upper subulate, all more or less roughly ciliate; segments of the calyx subulate-lanceolate; tube of the corolla three times the length of the funnel-formed border, its segments oval and rounded; stamens about half the length of the border.

A very elegant species, bearing apparently very few flowers at a time. About four inches high, branching considerably from the base, somewhat scabrous, with a

whitely pubescent purple stem. Tube of the flower very long compared with the length of the border, whose segments are oval, of a fine rose red with a yellow throat, making a very bright appearance.

HAB. On moist rocks, on the Oregon near the outlet of the Wahlamet; the only place where we saw it. (Nuttall.)

FENZLIA.

F. *SPECIOSA. Copiously branching from the base, nearly glabrous; leaves linear, entire; flowers pedunculate, (concolor, nearly white?) border of the corolla as long as the elongated segments of the smooth calyx.

Closely allied to *G. dianthoides*, yet decidedly distinct. We have seen many specimens, and they are usually a span high, (in place of two or three inches,) much branched from the base, branches with opposite branchlets. Leaves narrow, linear, and as well as the upper parts of the stems a little pubescent. Flowers inclined to form a trichotomous loose panicle. Segments of the calyx narrow, linear, shorter in proportion than in *G. dianthoides*. Corolla widely funnel-formed, the segments broadly obovate, the border denticulate; the corolla yellowish-white, and with the throat of the same colour. Style and stigmas scarcely exserted beyond the throat of the corolla; the stigmas rather long and filiform. This section is so perfectly natural and distinct from all the other *Gilias*, that we cannot help regretting its abolition as a genus.

HAB. On the island of Catalina. Flowering in February.

F. *CONCINNA. ⊙. Very dwarf and somewhat pubescent, branching from the base; leaves linear, flowers nearly sessile; segments of the calyx longer than the cup.

A very elegant but minute plant, scarcely more than an inch or an inch and a half high, with a much shorter but nearly as broad a flower as that of *F. dianthiflora*, of a delicate rose purple with a yellow base, and five purple spots. The calyx is somewhat hirsute, ovules in each cell, about twelve in a double series, angular with a concave depression.

HAB. Near San Diego, Upper California. Flowering in May. (Nuttall.)

LEPTODACTYLON.

L. *CÆSPITOSUM. Diffusely cæspitose, herbaceous and smooth; leaves imbricated, the segments about three, flat, with sharp subulate points; the tube of the corolla exserted; segments cuneate, entire.

A very distinct species from *L. hookeri* and *L. pungens* of Torrey, which are suffruticose. In this the flower is white, something resembling a *Phlox*, but the base of the border is somewhat concave; ovules few. This species formed dense tufts of one or two feet in diameter, but only two or three inches high.

Hab. On the borders of the Platte, and hills near Scott's Bluffs. Flowering in May. (Nuttall.)

EUTOCA.

E. *albiflora. ⊙· Glandularly pilose and viscid; stem erect and branching; leaves broad-ovate, shortly petiolate, subcordate, angularly biserrate; racemes curved, elongated, many-flowered, calyx segments spathulate-linear, obtuse; corolla not much longer than the calyx; capsule many-seeded.

In many respects this species resembles *E. viscida*, except that the flower is more than twice as large and of a deep blue; the serratures and side of the leaves are also different. The pubescence is terminated with black glands, and the seeds are rugose, the capsule ovate, with a short style and stigma.

Hab. Santa Barbara, Upper California.

E. *speciosa. ⊙. Stem erect and simple; leaves broad-ovate, subcordate, doubly serrate, almost lobed, beneath strongly nerved, and, as well as the stem and calyx, hispid and viscidly glandular; racemes at the summit of the stem, several, circinate, not elongated; flowers on short pedicels; segments of the calyx spathulate linear; capsule with more than fifty roundish, very rugose seeds.

Nearly allied to *E. grandiflora*, the flowers being equally large and showy, of a fine blue. Stem two to three feet high, very stout; the leaves large, almost lobed on the margin; style and stigmas very long, filaments hairy on the lower part. The viscid pubescence is black, and of a heavy resinous rather disagreeable smell, almost like that of rue. It communicates an almost indelible stain to clothing.

Hab. Near St. Diego, Upper California. (Nuttall.)

*EUCRYPTA.†

Calyx five-parted, without external appendages; lobes oval or ovate. Corolla tubular campanulate, half five-cleft, deciduous, without internal appendages; the lobes rounded; the æstivation with three segments exterior and two interior. Stamens five, equal, arising from the base of the corolla, smooth, somewhat exserted; anthers small and oval, nectary none. Ovary depressed, globose, one-celled; placentas two, free, externally septiferous, each with four dissimilar ovules. Style elongated, very shortly bifid. Stigmas minute. Capsule two-valved, dividing parallel with the placenta, presenting four roundish, rugose seeds; concealed in the adnate parietes, as it were, of each of these valves are (when perfect) two other seeds, which are even and elliptic! separated from the other seeds by a perfect membranaceous partition, parallel with the deep concavity of the valves, and each of these partitions is again divided internally by a proper transverse septum; so that the capsule is in fact four-celled, with closed partitions, and the division of the adnate

† So called in allusion to the concealed cells of the capsule.

placentas presents the large circular cavity of the capsule, as if merely one-celled, with two hemispherical valves! Seed with a corneous, large albumen; embryo straight, minute, central, not half the length of the albumen. Annuals with bipinnatifid leaves, and the flowers in loose racemes.

E. *PANICULATA. ⊙. Flowers in loose terminal panicle; stem viscid; uppermost leaves pinnatifid, segments of the calyx oval, obtuse.

About one to two feet high, somewhat hairy and viscid. The leaves bipinnatifid; the segments short, and toothed bluntly. Flowers small, yellowish-white, rather more than the length of the calyx, disposed in loose, naked, terminal racemes, with long peduncles. Calyx cup-shaped, increasing with the fruit; the segments oval and obtuse. Corolla pubescent, tubular-campanulate, shortly 5-cleft, before opening, with three of the segments external. Stamens equal, with slender filaments; anthers small and oval; style longer than the germ, with a very short bifid stigma. Capsule depressed, globose, apparently 1-celled, each of the placentas becoming adnate to the sides of the valves, with about four rugose seeds, two to four other even, elliptic seeds concealed behind the placental lamina, one or two behind each. The rugose epidermis of the seed swells up into a pulpy mass on being moistened.

HAB. Island of Santa Catalina, Upper California. Flowering in March and April.

E. *FOLIOSA. Leaves all bipinnatified, hirsute; racemes not longer than the leaves; segments of the calyx ovate, acute.

HAB. With the above, which it much resembles, but a lower, less viscid plant, with rather smaller flowers and capsules.

COLLOMIA.

§. *PICRACOLLA. Calyx obconic, scarcely cleft to the middle, with foliaceous segments. Flowers racemose, scattered. Intensely bitter to the taste.

C. *LINOIDES. Leaves narrow-linear, scattered, ending in a short mucro; flowers small, scattered, subsessile, the calyx shorter than the tube of the corolla.

HAB. Banks of the Platte. (Nuttall.)

PHACELIA.

P. *CANESCENS. Canescent and hirsute; leaves spathulate, oblong or sublanceolate, entire; racemes condensed into circinate clusters; corolla twice the length of the calyx; stamens exserted, the filaments pilose.

A perennial dwarf species, about a span high, with many stems from the same root. Radical leaves whitely and densely pilose, with two sorts of pubescence, rather silky. Radical leaves two to three inches long, by three-fourths of an inch in width, on

longish petioles. Upper leaves nearly sessile; calyx very hirsute; corolla pale lilac rose; ovary with four seeds; stamens much exserted; it has a general resemblance to *P. circinata*. The *P. integrifolia* of Torrey has four very rugose convex elliptic seeds.

Hab. In the Rocky Mountains, and Blue Mountains of Oregon. (Nuttall.)

P. *glandulosa. Annual or biennial, very pilose, with a soft, short, shining pubescence; the stems and calyx covered with blackish, viscid, resinous glands; leaves pinnatifid, the segments somewhat toothed, short and roundish; flowers shortly pedicellate in crowded circinate spikes; segments of the calyx oblong; stamens exserted; style pilose.

Four to six inches high, with a long tap root, as in biennials. Leaflets two to three lines long, toothed and rounded, somewhat oblique, resembling almost the frond of a small fern. Flowers blue and showy. Capsule four-seeded; seeds elliptic concave; internally, where attached to the placenta, roughened all over with minute asperities.

Hab. About Ham's Fork of the Colorado of the West, on dry, bare hills. (Nuttall.)

NAVARRETIA.

N. *minima. ⊙. Smooth, dwarf, depressed and branched from the base; leaves somewhat bipinnately divided, with few and divaricate, subulately sharp segments; floral leaves simply pinnately dissected; calyx with three of the segments usually entire; corolla longer than the tube of the calyx; ovary cells 2-seeded.

Seldom more than an inch high; segments of the leaves quite acicular; flowers small and white, the tube exserted a little beyond the calyx; the stamens slightly exserted.

Hab. Plains of the Oregon, near Walla-Walla. (Nuttall.)

ERIOGONUM.

E. *acaule. Very dwarf, stemless and cæspitose, the caudex much divided, leaves whitely tomentose, oblong-linear, reflected so as to be semi-cylindric; involucrum wholly sessile, few flowered, 4 or 5-toothed, the teeth very obtuse.

A very remarkable dwarf species, forming dense tufts, independent of the subterraneous woody caudex, not an inch high, whitely tomentose. Leaves about a line wide and about three or four long. Flowers yellow and bright, externally somewhat pubescent, as well as the germs.

Hab. On the summit of the Rocky Mountains, near the Colorado of the West, at the highest land.

E. *andinum. Stemless, cæspitose, the caudex much divided; leaves small and spathulate, wholly and whitely tomentose, reflected on the margin; scapes all radical, terminating in a single capitulum; involucrum divided nearly to the base, the segments about eight, leafy; flowers yellow, small.

With a woody brown subterraneous stem, terminating with cæspitose tufts of white, softly tomentose leaves; scape two or three inches high, with a small umbel of bright yellow flowers, which are pubescent externally, and reflected from the multifid involucrum, which is divided into eight small, leafy appendages. Germ smooth. Stigmas rather long. Considerably allied to *E. cæspitosum*, but with the leaves scarcely half the size, much narrower, the flowers yellow, not ochroleucous, and scarcely half the size of those of the *E. cæspitosum*.

HAB. With the above.† (Nuttall.)

E. INTRICATUM. (Benth.) Annual, very smooth, excepting the under surface of the leaves, which are tomentose; leaves all radical and small, roundish reniform, on long petioles; stems many, all from the base, naked and scapoid, terminating in a single involucrum, or corymbosely terminated by two or three; involucres double, the outer or bractes short and 3-cleft, the inner 8-toothed and strongly ribbed, bearing tufts of abortive filaments; perigonium smooth, (purple.)

E. denudatum. Nutt. Proceed. Acad. Nat. Sci. Feb., 1848.

An annual about a span high, with numerous long, slender, almost filiform, naked stalks, like so many radical scapes, but bearing here and there a minute leaf or leaves. The leaves (in the only specimen I have obtained,) are very small, scarcely exceeding those of garden thyme, and roundish-reniform; very smooth above, of a thick consistence, and with a circumscribed tuft of white tomentum beneath. Some of the stems are proliferous, sending up secondary stalks, subtended also by a few small leaves; involucrum smooth, with eight broad ribs, and as many terminal teeth; a 3-cleft short involucellum, of the same consistence with the involucrum. Perigonium, purple, smooth; stamens nine; anthers purple: germ smooth. A great number of slender, infertile filaments arising from the inner base of the involucrum.

HAB. In the Rocky Mountains of Upper California.

E. *RACEMOSUM. Scape naked and whitely tomentose, as well as the elliptic ovate leaves, sparingly forked at the summit, with the solitary involucres sessile and forming a spike; involucrum very woolly, obsoletely toothed, subtended by a 3-cleft sheathing involucel or bractes; perianth smooth, oblong, attenuated at the base, (flowers ochroleucous?)

Scape about eighteen inches high, leaves on longish petioles, very white beneath; racemes, five or six, produced from shortish forks of the scape towards its summit; flowers numerous, rather large, woolly filaments among the fertile ones in the involucrum.

HAB. Colorado of the West.

E. *ELLIPTICUM. Suffruticose; barren branchlets at the base of the scapoid stem; leaves elliptic or oblong-elliptic, beneath whitely tomentose, above nearly smooth; umbel compound, the forked divisions and general umbel involucrate; the involucels leafy and spreading; involucrum campanulate, lanuginous, 6-cleft, the segments rather longer than the tube, very many-flowered; perianth exserted, oblanceolate, attenuated to the pedicel, smooth, (or pubescent?)

† These two remarkable species were collected by myself, in 1834.

A low suffruticose plant, with infertile leafy branchlets at its base, with a woody caudex. Leaves about an inch long, attenuated into a longish petiole, with scape-like flower stems, terminating in twice compounded umbels, all of them subtended by leafy bractes; bractes also appear on the partial pedicles below the flowering summit. The involucrum almost cup-shaped, and shallow, with its leafy divisions reflected; flowers bright yellow, and very large and showy; oblanceolate, very much attenuated to the jointed peduncle; filaments pubescent at the base; achenium smooth, embryo concentric, inverted.

HAB. Rocky Mountains. (Nuttall.)

β. MEGACEPHALUM. Leaves oblong, subelliptic; perianth *pubescent;* umbel simple.

More dwarf than the preceding, with narrower, shorter stalked leaves, and very short, rayed, simple umbels. Perhaps a different species, but very nearly allied.

HAB. With the above.

E. *GENICULATUM. Suffruticose, low and considerably branched; stems clustered; leaves linear, somewhat oblong, revolute on the margin, pubescent above, tomentose beneath; umbles simple, of few rays, the involucrum of the umbel long and leafy; proper involucrum campanulate, many-flowered, lanuginous; the border many-cleft, the divisions spreading and nearly as long as the cup; flowers yellow, numerous and small, obconic, externally pubescent towards the base.

A small shrub or suffrutex, about a span high; the branches clustered; with knots and decayed sphacelous remains on the lower part; leaves small and clustered; umbel of only two or three rays, short, many-flowered; about half the size of the preceding species: embryo concentric.

HAB. In the Rocky Mountains, on the western slope. (Nuttall.)

E. *CERNUUM. ⊙. Leaves all radical, round oval, upon longish petioles, very whitely tomentose beneath, less so above; scape smooth, two or three times dichotomous; involucres solitary, pedicellate, smooth; pedicels exserted, at length cernuus; involucrate bractes 3-cleft, acute, appressed; teeth of the involucrum acute; flowers few and small; segments of the perianth undulated.

A rather small species, eight to ten inches high; leaves about half an inch long and nearly the same width; pedicels about half an inch long, reflected after inflorescence; involucres minute, campanulate, about six to eight-flowered, the flowers brownish, smooth: the segments of the perianth with whitish, undulated margins; stamens three? caryops roundish at the base, with a minutely scabrous 3-sided attenuated summit. Probably dioicous.

HAB. On the plains of the Oregon and in the Rocky Mountains. (Nuttall.)

E. *MICROTHECA. Suffruticose and dwarf; stems slender and clustered, at first arachnoid tomentose; leaves linear-oblong, nearly smooth above, whitely tomentose beneath, shortly petiolate, the petiole widened at the base; umbel two or three times di- or trichotomous, eaah division bracteate; the involucrum small and distinct, pubescent, about 6-flowered; the teeth about six, ovate, obtuse; flowers yellow, very small.

A very low shrub, crowded with brown, short, twiggy branches; umbels very compound; the involucres all distinct, not crowded together; every joint of the umbel subtended by short appressed bractes.

HAB. On the sides of hills in Oregon, east of Walla-Walla. (Nuttall.)

E. *CAMPANULATUM. Leaves all radical, clustered upon a thickish caudex, linear-spathulate or narrowly oblong, narrowed below into longish petioles, whitely tomentose on both sufaces; scapes smooth and naked; umbel about twice trichotomous, few-flowered; bractes acute, a little tomentose on the margins; involucrum campanulate, about 6 to 10-flowered, smooth, with obtuse teeth; perianth yellow, smooth.

A small species, with long, narrow, whitely tomentose leaves, clustered at the top of a simple unbranched caudex, one and a half to two inches long, by about two to three lines in width, and obtuse; scapes six to eight inches, and as well as the branches of the umbel, quite smooth and brownish; rays usually three to four, some simple and others subdivided; involucres solitary; pedicellate mostly with bractes a little below them: flowers minute, dioicous? stamens nine.

HAB. On the western declivity of the Rocky Mountains. (Nuttall.)

E. *BREVICAULIS. Branches very short, arising from a woody caudex, clustered, tomentose; leaves linear-lanceolate, long and rather acute, attenuated into a very long petiole, whitely tomentose beneath, less densely above; upper scapoid stem very smooth; the bractes acuminated, tomentosely margined; umbel two or three times compounded, with very long rays, teeth of the campanulate involucrum acute; flowers smooth, yellow and very small.

A much larger plant than the preceding, which it much resembles, with an evident short stem; leaves three or four inches long, attenuated, with a very long petiole, dilated at its embracing base two or three lines wide.

HAB. On the upper plains of the Oregon. (Nuttall.)

E. *GYROPHYLLUM. With a woody caudex; lower leaves clustered towards the base of the stem, oblong-lanceolate, acute, attenuated at the base, beneath tomentose and yellowish-white, above slightly pubescent and green; a verticel of leaves on the stem, about six, subsessile, oblong; umbel simple, of many short rays, with a leafy, spreading involucrum, tomentose within and without, many-flowered, shallow and simple, with longish, reflected teeth; perianth smooth, exserted.

A remarkable species, bearing some distant resemblance to *E. tomentosum*, but the plant and its leaves are much smaller. It is about a foot high; leaves about two inches long, and half an inch wide, with a little of the brownish hue to the tomentum so remarkable in *E. tomentosum*. Several infertile small branchlets come out from the stem, which is also tomentose; rays of the umbel eight to ten; flowers ochroleucous, numerous, much exserted, oblanceolate; achenium a little hairy on the angles.

HAB. Rocky Mountains of the Platte. (Nuttall.)

E. *ANGUSTIFOLIUM. Suffruticose, with infertile branches towards the base; leaves fasciculated and verticillated, linear-acute, narrowed below, whitely tomentose beneath, greenish but pubescent above, a verticel of about six leaves on the short stem; umbel simple, subtended by long, leafy bractes; divisions of the many-flowered involucrum reflected, pubescent; perianth reflected, smooth.

A low, somewhat shrubby species, about a foot high; the stem tomentose; leaves an inch or more long, about a line wide; rays of the umbel seven or eight, short.

HAB. Western slope of the Rocky Mountains. (Nuttall.)

E. *EFFUSUM. Suffruticose; leaves linear, oblong, obtuse, beneath whitely tomentose, above pubescent, greenish; stem tomentose, two or three times trichotomous, divaricate; bractes ternate, lanceolate-acute; (flowers not seen.)

Stem divided into many simple branches below; flowering stem bearing bractes only, divided compoundly and numerously, each division subtended by conspicuous, trifid bractes.

HAB. In the Rocky Mountains. (Nuttall.)

E. MICRANTHUM. Leaves nearly all radical, arising from a thickish, woody caudex, linear-spathulate, or narrowly oblong-lanceolate, narrowed below into longish petioles, whitely tomentose on both surfaces; scapes, bractes and involucres tomentose; umbel decompound, pedicels of the second divisions very short, with about three involucres in each; bractes acute or acuminate; involucres campanulate, very small, the teeth obtuse; flowers smooth, small and yellow, dioicous.

In aspect nearly allied to *E. campanulatum*, but with rather longer and narrower leaves, and the involucres most of them sessile.

HAB. In the Rocky Mountains of Oregon. (Nuttall.)

E. *ALBUM. Nearly stemless, with a woody caudex; leaves very whitely tomentose, spathulate-obovate, obtuse, usually longer than the petiole; bractes minute, appressed; umbel nearly simple, of few rays; involucrum tomentose, angular, with shortish teeth; flowers numerous, smooth.

Very nearly allied to *E. dichotomum*, but a smaller growing plant, with broader, shorter, and whiter leaves; branches of the umbel two or three, short; each branch bearing about two or three involucres, the uppermost pair of involucres sessile, so as to form a larger head than what ever occurs in *E. dichotomum*, and with the involucres not singly disposed in a forked spike as in it. Flowers larger and smooth, the filaments slightly hairy at the base, achenium with acute angles.

HAB. Rocky Mountains of Oregon. (Nuttall.)

E. *ROSMARINIFOLIUM. Shrubby and much branched, smooth or somewhat pubescent; leaves clustered, nearly linear, revolute on the margin, slightly tomentose beneath; umbel pedunculate, compound, bractes leafy, numerous; involucres usually smooth, with acute teeth: perianth mostly glabrous.

Nearly allied to *E. fasciculatum*, but never with either oblong or elliptic leaves. A stoutish low bush with brown brittle branches. Leaves smooth, three-fourths of

an inch long, about a line wide, as strongly revolute on the margin as the leaves of Rosemary. Flowers very numerous and showy, whitish, with red central lines; perianth pilose at the base; some of the rays of the umbel nearly sessile.

HAB. Near Santa Barbara, Upper California.

β. FOLIOLOSUM. Leaves more acute, with the petiole, young branches and the perianth, externally near the base, pilosely pubescent.

HAB. With the above.

E. *VERTICILLATUM. Biennial; stem dichotomously branching, the offsets all subtended by verticels of sessile, lanceolate, very acute leaves, in 3's; radical leaves oblong, as well as the stems and branches whitely tomentose, attenuated below into long petioles; flowers wholly unknown.

E. elongatum. (Benth.)?

We have not seen the plant in flower, but the remarkable characters, somewhat resembling those of *E. tomentosum*, and unlike any other species, perhaps justifies our giving it a passing notice.

HAB. Near St. Diego, Upper California.

E. *NUTTALLII. (Gambel.) Densely cæspitose, with a woody, multifid, short caudex; leaves roundish, ovate or elliptic, on short petioles, not exserted from the cæspitose mass, whitely tomentose on both sides, as well as the scape and involucrum; capitulum solitary, rather small; involucrum cylindric, with obscure teeth, cluster of involucres eight or ten, sessile; flowers small, purple; segments of the perianth oblong, not very unequal.

E. tenellum. Nutt. (Non. Torrey.) Proceed. Acad. Nat. Sci., Feb., 1848.

Allied to *E. ovalifolium*, which it resembles at first glance, but with shorter leaves and elongated scapes, the flowers deep brown purple, and scarcely one-third the size of that species. The capitulum in *E. ovalifolium*, like the present, is made up of several sessile involucres, which are sometimes nearly smooth, the perianth also is very unequal, three of the outer segments being nearly round-oval, while the inner are oblong.

HAB. In the Rocky Mountains, on the western slope.

The character of the genus *Eriogonum*, of which there are so many species, perhaps deserves some additional consideration. The genus, as founded on *E. tomentosum* of Michaux, possesses yet some peculiarities not common to the rest of the genus; among the rest of its characters I may remark, that in place of the interior segments of the perianth being smaller, it is the reverse; the perianth increases in size with the perfecting of the fruit, and as in *Rumex*, the three inner segments are larger and erect, the three outer reflected; the next discrepancy in the character, as given by authors, is in the condition of the embryo, which is placed in the centre or axis of the seed, and is not as described excentric.

In *E. longifolium*, besides a remarkable difference in habit, the perianth is wholly herbaceous, very lanuginous, and the segments all so very equal, as to appear, at

length, almost disposed in a simple series; the achenium is also lanuginous, and the seed presents, as in *E. tomentosum*, a concentric embryo. For *E. longifolium* I would therefore propose the name of TRACHYTHECA, excluding every other species. It is the first species of the section ERIANTHA of Bentham, which name, in not being exclusive, and too near *Erianthus*, cannot properly be employed for the present plant. It is very peculiar in its solitary leaves and alternate branches.

In all the rest of this numerous genus, the outer segments of the perianth, which increase a little in size, are either larger and erect, or all nearly equal. In these, some of which have the embryo excentric and others concentric, the subgeneric name of OLYGOGONUM may be applied, but whether any other subdivision may be made by the condition of the embryo is at present uncertain. In *E. flavum* I believe the embryo is excentric, but how far that species connects itself to any others of similar form, remains to be examined.

*EUCYCLA.†

Perianth membranaceous, coloured, petaloid, dimorphous, the three outer divisions orbicular, concave; the three inner linear-oblong, emarginate, connivent into a cylinder. Stamens nine; with short filaments, membranous at base. Styles three, of moderate length, with small, capitate stigmas. Achenium attenuated, triangular. Embryo excentric; radicle superior; cotyledons flat.

E. *OVALIFOLIA.—Leaves all radical, short and roundish-ovate, whitely tomentose; capitulum made up of several sessile, whitely tomentose involucres; outer segments of the yellow perianth rather narrower at base, the inner emarginate segments exserted.

Erigonum ovalifolium. Nutt. Journ. Acad. Nat. Sci., Philad.

HAB. Sources of the Missouri. Flowers bright yellow.

E. *PURPUREA. Leaves all radical, short and roundish-ovate, whitely tomentose; capitulum made up of several sessile, smoothish, tomentosely margined involucres; outer segments of the purple perianth orbicular, sometimes emarginate at base; the inner emarginate, narrow, segments scarcely exserted.

Scape about a span high, arising from a multifid woody caudex; flower larger than in the preceding, and purple; filaments much shorter than the perianth, with a torn membranous margin, at base three stamens seated on each of the inner narrow segments; embryo rather short.

HAB. Rocky Mountains.

CHORIZANTHE.

C. *NUDICAULE. Annual; radical leaves narrow spathulate, pubescent, with long, slender petioles, tomentose beneath; scapiform stem nearly naked, the summit trichotomous, the branchlets once or twice bifid, the flowers cymosely conglomerated; stem and very unequal toothed involucrum lanuginous; segments of the sessile exserted, perianth oblong, obtuse.

† In reference to the circular figure of the perianth.

An annual, about ten to twelve or fourteen inches high, with a few narrow spathulate leaves, greenish, but pubescent above, whitish and tomentose beneath. Clusters of flowers crowded; the perianth apparently rose colour, much exserted, with the segments oblong.

HAB. Santa Barbara, Upper California. Flowering in April.

C. *ANGUSTIFOLIA. Annual and small; leaves all linear-spathulate, softly lanuginous, as well as the branches; stem trichotomous, the heads of flowers somewhat racemose; involucrum pilose, with very unequal, uncinate spreading teeth, subulate to their base; perianth minute, the segments obtuse and without points.

A small, slender annual, three to five inches high, covered with whitish, long, woolly hairs. Leaves not more than a line broad, radical, one to two inches long, with very slender petioles. Stem leafy to the summit, bi- or trichotomous, the heads of flowers disposed in a sort of cymose raceme. Teeth of the involucrum brownish yellow, very unequal and strongly hooked, wholly subulate, without any membranous expansion, the teeth twice the length of the cup of the involucrum. Perianth sessile, with oblong, obtuse segments, which are not mucronulate.

HAB. Pueblo los Angeles, Upper California. Flowering in April.

C. *DISCOLOR. Annual or biennial, and rather dwarf; leaves all radical in a rosulate cluster, the primary nearly smooth, rather large, spathulate-oblong, obtuse or emarginate, rather smooth above, whitely tomentose beneath; the petioles, stem and involucrum very hairy; the involucrum with spreading, very unequal teeth subulate to their base; scape low, doubly trichotomous, the flowers in cymose clusters.

A smallish species, three to five inches high. Leaves with their longish petioles two to two and a half inches long, about half an inch wide. The involucrum with the teeth slightly uncinate, two of them very small.

HAB. St. Diego, Upper California.

C. *PROCUMBENS. Annual or biennial, softly pilose; leaves spathulate, rather small; stem nearly naked, procumbent, the branches extremely divaricate and fragile, cymose; flowers in small clusters; involucrum with the teeth subulate to the base, slightly uncinate, unequal; perianth segments oblong, entire, (yellow,) pubescent.

A very remarkable species by its procumbent habit and extreme fragility; the branchlets and clusters of flowers disjointing into numerous fragments on the slightest touch, like a *Loranthus*.

HAB. With the above. Flowering in April and May. (Nuttall.)

C. *UNCINATA. Like the preceding, but with the teeth of the involucrum strongly and remarkably uncinate and nearly equal; the tube is almost smooth and strongly ribbed; it is likewise yellowish, as well as the pubescent perianth.

HAB. With the above. (Nuttall.)

§. *Ptilosepala. Perianth exserted; the segments oblong, deeply fringed towards their base, (red,) styles very long.

C. *fimbriata. Annual; leaves all radical, spathulate-oval, pilose beneath; scape trichotomous; flowers in compound cymes; involucrum pubescent, the teeth subulate, unequal; perianth torn at the sides into long capillary fringe.

Three to five inches high, erect, with a rather large trichotomous cymose panicle, the flowers sessile and mostly distinct. Segments of the perianth exserted, bright rose red below, within the involucrum membranous. The joints of the cyme fragile.

Hab. With the above. (Nuttall.)

PTEROSTEGIA.

P. *diphylla. ⊙. Pubescent; leaflets binate, each division obcordate or bilobed; common petiole on the lower leaves very long; achenium with the angles acute.

β. *biloba. Leaves nearly all two-lobed, the lobes sometimes emarginated.

A diffuse prostrate annual, with straggling forked branches, the leaflets almost like some *Oxalis*, small, about three to four lines long, and about the same breadth, the lower petioles more than an inch long; margins of the two-leaved involucrum denticulate, scattered, with small hooked hairs, the crests nearly entire on the margin, and partly folded up at the lower edge.

Hab. Near Santa Barbara. Flowering in May.

P. *microphylla. ⊙. Somewhat hirsute; leaflets binate, the lower ones twice compounded, divisions obcordate or unequally bilobed, the lobes sometimes with a single tooth; common petiole on the lower leaves elongated, the upper leaves sessile; achenium with obtuse angles.

Hab. With the above, which it greatly resembles, but always smaller leaved and more pubescent.

*NEMACAULIS.†

Involucrum, none; the flowers monoicous, disposed in round clusters at the joints of the filiform stem, subtended and mixed with elliptical bractes. Perianth obconic, six-cleft. Stamens three. Styles three, very short, with small subcapitate stigmas. Achenium ovoid, angular only at the summit.—Californian annuals, the leaves wholly, and the bractes on the upper side densely and whitely tomentose; stems smooth or viscid, filiformly elongated and nearly naked, with the flowers disposed in sessile round heads at the joints of the stem, and subtended and mixed with small, elliptical, marginated bractes. The flowers resemble those of *Eriogonum*, but the habit, absence of involucrum, and paucity of stamens, at once distinguish it.

N. *denudata. Roots long and slender, filiform. Leaves spathulate-cuneate, attenuated below into a petiole one and a half to two inches long, densely lanuginous, stems three to five from the same root,

† From the singular prostrate, thread-like stem.

smooth and wiry, rigidly horizontal, at the first or second joint, bearing a few leaves below the capitulum, the joints not deciduous; heads of flowers about the size of peas, bearing ten or more flowers each, subtended with, and mixed up with the elliptic bractes, which are margined and smooth beneath, densely woolly like the leaves of some *Gnaphalium* above; perianth exserted a little on a jointed peduncle, brownish, with white margins to the oval obtuse segments; some flowers appear to be hermaphrodite, others with stamens only.

HAB. St. Diego, Upper California, in sandy places, near to the sea shore. Flowering in April and May. (Nuttall.)

N. *FOLIOSA. With the above, from which it perhaps is not distinct; the leaves are much longer, the stem a little glutinous, and with most of the joints of the latter leafy.

*OXYTHECA.†

Dioicous or monoicous. Involucrum small, four to five-toothed, obconic, few-flowered, (three to five,) the teeth mostly spinulose. Female perianth closed to the summit about six-toothed; male and hermaphrodite shortly six-cleft. Stamens about six? Achenium compressed, two-sided, elliptic. Style three. Embryo eccentric, in a somewhat fleshy perisperm, antitropus. Cotyledons oval, flat; radicle elongated, curved.—Annuals, with the leaves generally hirsute, nearly all radical; panicle or branches trichotomous and very divaricate, the ramifications subtended by verticillated bractes, free or united into a cup. Involucres very small, solitary and pedicellate, four to five-toothed, the teeth terminating in very long, sharp, rigid bristles, more rarely unarmed; perianth pubescent; the branches clothed with viscid, pedicellate glands. Somewhat allied to *Chorizanthe*, but with the involucrum more than one-flowered, and the achenium compressed.

O. *DENDROIDEA. Leaves all linear, radical, hirsute; scape divaricately di- and trichotomous; peduncles capillary; involucrum about three-flowered; awns twice the length of the involucrum.

A slender annual, about four to six inches high; the leaves in a rosulate cluster, imbricated round the caudex; about one to one and a half inches long, and less than a line wide; very hirsute, and strongly revolute; the bractes at the divisions of the stem divided at the base; about three flowers in an involucrum; perianth of the female flower pubescent, nearly entire, and closed around the achenium to its summit, which slightly projects, purplish at the point, exserted from the involucrum; achenium compressed, lenticular, strongly adhering to the perianth, with a projecting triangular summit; styles three, very slender, and rather short.

HAB. On the sand hills of the Rocky Mountains, near Lewis' River.

O. *FOLIOSA. Leaves linear-lanceolate, hirsute; divisions of the trichotomous stem subtended by verticils of leaves; awns of the involucrum about its length.

†In allusion to the peculiar involucrum.

Hab. With the above, which it much resembles; it is, however, a much stouter plant. The leaves about two inches long and two or three lines wide.

§. *GOMPHOTHECA.—*Dioicous.* Annual; stem naked, verticillately branched and very divaricate. Involucrum small, about five-toothed, five-flowered; without awns.

O. *GLANDULOSA. Leaves all radical, roundish and pilose; branches verticillate, branchlets very numerous and divaricate, the ultimate ones and pedicels capillary; flowers exserted, pubescent.

Stems and branches about a foot high; leaves thick and fleshy, green, but pubescent, particularly along the under nerves, on longish petioles, about half an inch wide and the same in length; stem simple and naked, dividing verticillately a few inches from the root; every branchlet and pedicel arising from a small three-cleft involucrum; branches and pedicels dark purple; perianth very pubescent; the segments linear-lanceolate, and acute; the achenium, as in some *Polygonums*, is only two-sided, or elliptic, and compressed when ripe; branches and peduncles covered with pedicellate, viscid glands; involucrum small and smooth.

Hab. Rocky Mountains of Upper Calfornia.

*STENOGONUM.†

Monoicous. Involucrum none. Flowers naked, in axillary clusters. Perianth triangular, six cleft. Stamens six? Styles minute, with capitate stigmas. Achenium conic, triangular, the angles sharp and salient, with a margin. A small, smooth, rather succulent annual plant of the Rocky Mountains, dichotomously subdivided and branched; leaves entire, opposite or ternate; flowers yellow, in axillary and terminal clusters, subtended by small, similar, leafy bractes. In the want of involucrum, approaching *Nemacaulis*, but the habit, flower and achenium are very distinct.

S. *SALSUGINOSUM. A small annual, about two to three inches high. Leaves linear, spathulate, about an inch long, one to two lines wide. Flowers in sessile clusters, in the forks, and at the extremities of the branches, subtended by an irregular circle of smaller leaves; perianth greenish, the border segments yellow; no stamens in the female flowers; no germs in the male flowers; embryo inclined to one side of the farinaceous perisperm; the cotyledons oval and flat; the radicle elongated, and curved in a contrary direction to the base of the nub.

Hab Bare saline hills of the Colorado of the West, in the Rocky Mountains. Flowering in June and July. (Nuttall.)

†In allusion to the sharp and slender angles of the achenium.

*HELIOMERIS.†

Capitulum many-flowered, heterogamous; rays ligulate, in a single series, neuter; discal florets tubular, hermaphrodite. Involucrum irregularly imbricated and leafy, in about two series, and rather spreading. Receptacle conic, the palea embracing the florets, lanceolate and acute. Corolla, rays ligulate, (10—12,) those of the disk tubular, the tube short, throat wide and cylindric, border five-toothed. Stigmata with oblong tips. Achenia laterally compressed, somewhat tetragonous, smooth, and without any pappus.

A perennial tall herb, exactly resembling an *Helianthus*, with narrow, entire, somewhat scabrous leaves, the lower ones opposite; flowers yellow, terminal, numerous.

H. *MULTIFLORUS. A stoutish perennial, three or four feet high, much branched; stems terete and striated; leaves narrow, lanceolate, entire, nearly sessile, above somewhat scabrous, opposite below, on the branchlets alternate; flowers terminal, numerous and showy, bright yellow, with ten to twelve rays, sometimes with deeper discoloured blotches towards the base or lower half, entire and oblong; leaflets of the calyx oblong-lanceolate, somewhat spreading, in nearly a simple series; achenia black and smooth. Scarcely distinguishable from *Helianthus*, except by a short conic receptacle, and naked seeds.

HAB. Mountains of Upper California, (Dr. Gambel,) and was also collected in the Rocky Mountains by Mr. Gordon.

CHRYSOTHAMNUS.

C. *DEPRESSUS. Suffruticose and dwarf, nearly smooth; leaves rigid, lance-linear, very acute, one-nerved; flowers in small corymbs; involucrum closely imbricated, the scales in five rows, lanceolate, acutely acuminated, smooth, the lowest very small, one-nerved and somewhat carinate; pappus fulvous.

Nearly allied to *C. pumilus*, but with a different involucrum. Achenia smooth, five-ribbed.

HAB. In the Sierra of Upper California.

Chrysothamnus, by Torrey and Gray, has been referred to the genus *Linosyris*, of the old world, with which, as I conceive, they have little if any affinity, as must appear on comparing the characters of the two genera. Taking *L. vulgaris* for the type of the genus, we observe that the hemispherical involucrum is scarcely imbricated, leafy externally, with about one row, or scarcely two, of scales, which are nearly flat; the florets very numerous, are very deeply divided; the stigmas are elongated; the summit or appendage *short* and *ovate*, much shorter than the lower or stigmatic portion. Pappus very copious, and scabrous, in several series, scarcely longer than

† In allusion to its close affinity to Helianthus.

the achenium. Achenium oblanceolate, and compressed, sericeous villous, with only *two* marginal lines. Receptacle conspicuous, with alveolar margins.

In the present genus the involucrum is imbricated distinctly, in three to five series of subcarinated scales, the lowest very small. The florets few in number, have a short, five-cleft border. The processes of the *style* are long and subulate, much exceeding the lower, naked portion. Pappus slender, much less copious, and not so scabrous as in the preceding; more than double the length of the achenium. Achenium somewhat cylindric, smooth, about *five* lined. Receptacle very small and smooth.

*OXYTENIA.†

Capitulum heterogamous, many-flowered, the marginal ones in a single series, apetalous and feminine. Florets of the disk tubular, masculine. Involucrum composed of a single series of imbricated, ovate, rather rigid scales, (about five.) Receptaculum small and flat; its palea narrow, spathulate and membranaceous, tufted with long hairs. MALE FLOWERS.—Corolla obconic, with a narrow tube; border five-toothed. Anthers distinct. FEMALE.—Corolla none. Stigmata terete, filiform, smooth. Achenia bluntly obovate, obcompressed and ridged on the inner side, covered with dense white hairs, situated beneath the scales of the involucrum and without pappus.

O. *ACEROSA. A stout shrub? with soft wood, (a branch of which, one of the specimens, is not less than three feet long;) every part of the plant (in a dried state, at least) covered with a fine close down. Leaves alternate, four to eight inches long, acerosely, linear and rigid, like those of a pine tree, nearly sessile, pinnatifid, with about two pair of segments, or simply trifid; both above and below simple; the divisions about the usual width of the leaves of the common Scotch fur, grooved beneath, but so closely revolute as to be terete. Flowers in terminal fascicles or divided branchlets. In some specimens, the capitulum appears to be smaller and the achenia more woolly, with only about ten male florets, while in others the infertile central florets are aboout twenty; the latter appear, therefore, to be male plants chiefly, but they have also female flowers, which are less woolly; involucrum roundish, of five ovate, acute, imbricated scales; male florets obconic, with a slender tube, covered with yellow glands; anthers free; stigmas slender, filiform; radial florets about five, the number of the involucrum scales; corolla none; stigmas two, sometimes, short, linear-oblong, smooth; achenia obovate, truncate, rigid internally, covered (particularly towards the summit,) with long conspicuous white hairs.

A large, erect, spreading bush, with the inflorescence of an *Iva;* the leaves alternate, acerosely linear and rigid, pinnately divided into trifid or more compound divisions; capituli sessile, arranged in a compound panicle, as in many *Artemisias.* The whole plant very bitter, but with very little aroma. In habit more allied to *Artemisia* than *Iva.* Appears to be nearly related to *Euphrosyne* of Decandolle, as well as to *Pycrothamnus* and *Cyclachæna,* which last, however, is not sufficiently distinct from *Iva.*

† From ὀξυτης *acuminate.* In allusion to the rigid narrow foliage.

Hab. Rocky Mountains, near Upper California. Flowering in October and November.

GNAPHALIUM.

G. *ramosissimum. Stem tall and stout, very much branched, the branches fastigiate; leaves and stem green but pubescent, the former linear-lanceolate, acuminate, strongly decurrent, viscidly pubescent; heads mostly pedunculate in scattered corymbs; scales of the yellowish-white involucrum, oblong-lanceolate, subacute, longer than the florets; achenia smooth.

A large plant, five or six feet high. Leaves somewhat like those of *G. decurrens*, but green on both surfaces; the upper leaves and branchlets tomentose, but not canescent; the capituli campanulate, distinctly pedicellate, or with two heads approaching each other on shortish stalks. The whole plant exhales the strong peculiar odour of *G. decurrens*.

Hab. Monterey, California. Flowering in September and October.

HELENIUM.

H. puberulum. (Decand.) Florets of the disk mostly five-toothed, pedicels very long and divaricate. Rays mostly three-cleft. Heads spherical and large.

Hab. St. Simeon, Upper California.

STEPHANOMERIA.

S. *elata. Stems stout, erect, grooved and attenuated upwards; leaves almost filiformly linear, the lowest somewhat pinnatifid, the upper lanciniately toothed at the embracing base; flowers in a small terminal panicle, (blue,) florets about ten; achenia cylindric-oblong, five-grooved, somewhat rugose.

Plant (probably perennial) three to four feet high, the stem perfectly simple, to the commencement of the flower branches, each of these bear three to four flowers, apparently blue. Involucrum and branchlets sprinkled with resinous dots. Involucrum ovoid and canaliculate, of six to eight leaflets in a single series. Florets deeply five-toothed, style and stigmas somewhat hispid. Achenia pale brown, oblong-cylindric, obtuse, with five, obtuse, rather rugulose ribs; rays of the pappus about fifteen to twenty, white, plumose hairs, rather naked toward their base.

Hab. Santa Barbara, Upper California.

PTILOMERIS.

P. *tenella. Pappus of eight to ten, cuneiform, obtuse fringed scales, in the rays minute; involucrum campanulate, about eight-leaved; scales ovate, somewhat obtuse; leaves mostly opposite, pinnatifid, the divisions few, narrow linear.

Very distinct from the *Hymenoxys Californica* of Hooker, (*Ptilomeris Californica,*) by its reduced size and smaller number of parts throughout, otherwise its habit and that of the following, are still very similar.

An annual, four to five inches high, the stems and pedicels more or less pilose. The leaves small, except the radical ones, simply pinnatifid, with capillary and nearly simple segments, all usually terminated with a blunt gland. Pedicels elongated. Involucrum campanulate, of about eight ovate, subcarinated scales, (as usual in the genus, arranged in a single series, so that the involucrum is either hemispherical or campanulate, according to the number of its leaves or scales,) rays about eight, oval, and short, scarcely emarginate, nearly entire; the radial achenia subfusiform, curved, and embraced as in the rest of the genus, by a fold in the scales of the involucrum, crowned by a very short and blunt pappus, similar to that of the discal florets, but nearly abortive. Achenia somewhat terete, minutely scabrous, and partly fusiform, in the ray sterile, discal florets with a slender tube. Receptacle small, smooth, and naked, conical.

Hab. In the vicinity of Pueblo de los Angeles, Upper California. Flowering in April.

P. *affinis. Similar to the preceding, excepting the pappus, which is fimbriate along the margin of the narrow scales, all terminating in awns, excepting the rays, which have the same short awnless pappus as in the preceding.

Hab. With the former. That these are true species, as well as the one which I called *P. coronaria*, I am persuaded by the fact of their retaining the same relative character when cultivated.

One of the species of this very distinct genus, (of which the seeds were sent to London from my growing plants in Philadelphia,) having been hastily referred in the Botanical Magazine to the genus *Hymenoxys* of Cassini, the rest of the species I described in the Philosophical Transactions have by Torrey and Gray been also placed in that very distinct genus, to which they have in fact no affinity, or external resemblance in habit. In *Hymenoxys*, the involucrum is biserial, with rigid appressed scales, of which the interior are longer; the achenia also are turbinate, and, as in *Actinea*, covered with erect, very copious, silky hairs; the rays are also, as in that genus, three-lobed at the extremity; the pappus is always entire, acuminately awned and consimilar. They are perennials, (at least the section *Oxypappus*,) and one of them was referred, even by H. B. and Kunth to the genus *Actinea*. I have also examined specimens of two or three species of *Hymenoxys*, in the herbarium of —— Fielding, Esq., of Lancaster, (England,) and perceive no affinity.

In revising my specimens, I find that the *dissimilar radial florets* are always embraced in a central fold of the scales of the involucrum, somewhat after the

manner of those of the ray in the MADIEÆ, and that though provided with a short style they are infertile.

HEMIZONIA.

H. *DECUMBENS. Annual, hirsute, pubescent; heads nearly solitary at the summit of the branches; leaves entire, linear, rather obtuse; rays ten to fifteen, cuneate, three-lobed; achenia rugose, with a short curved beak; pappus of the disk flowers none.

A good deal resembling *H. fasciculata*, but in the two specimens from which I have described, the leaves appear to be all entire. About a foot high and rather decumbent. The flowers yellow, rather scattered, disk flowers enclosed in a cup formed by the union of the inner row of receptacular carinate scales. Stigmas filiform, branchlets and involucrum sprinkled with resinous glands.

HAB. Near Monterey, California.

§. MADIOMERIS. Heads hemispherical, many-flowered, corymbose; rays twenty to twenty-five, receptacular chaff, in a single series, not united; pappus none; leaves pinnatifid.

H. *MACROCEPHALA. Annual? hirsute; leaves irregularly pinnatifid, acute, upper ones entire and sessile; flowers subcorymbose, head hemispherical, many-flowered; rays twenty to thirty, cuneate, three-lobed; achenia incurved, rugulose, with an oblique apex and stipitate at the base.

About a foot high, more or less clad with long hirsute hairs. Flowers about the size and appearance of those of *Madaria elegans*, bright yellow. Stigmas very long and filiform in the rays, in those of the discal florets hispid and much shorter. Achenia convex externally, and rugulose internally, angular, with a short incurved beak, having a circular cicatrice, and attenuated into a slender stipe at the base. Discal florets densely bearded or fimbriate along the margin of the dentures, their infertile germs oblanceolate and flat. Anthers with broad ovate cups. Leaves of the involucrum linear-lanceolate, leafy and very hairy.

HAB. At St. Simeon, Upper California.

MONOLOPIA.

M. *LANCEOLATA. Young branches and leaves at first somewhat tomentose, at length nearly smooth; leaves oblong-lanceolate, distantly and irregularly toothed, sessile, all alternate, above entire and amplexicaule, acute; peduncles tomentose; leaves of the involucrum usually eight, ovate, divided nearly to the base; rays a little longer than the disk; florets all fertile; receptacle conic, smooth, with projecting papillæ.

A tall stout annual herb, two feet or more in height, and considerably branched, with much the aspect of *Chrysanthemum segetum*. Leaves two to four inches long, the

lower ones irregularly repand toothed, about half an inch wide; on the stem, except at the base, amplexicaule; young shoots and branches softly tomentose as in a *Gnaphalium*; peduncles very long and tomentose, one-flowered. Flowers yellow and showy. The involucrum of about eight to ten ovate, acute, greenish leaves, in a single series, divided nearly to the base. Rays eight to ten, cuneate-oval, entire, or two or three toothed, a little longer than the disk, furnished with obtuse, smooth stigmas, and a small, indistinct toothed appendage behind the stigmas. Florets of the disk with a narrow smooth tube, the teeth on the inner margins furnished with numerous threads, which when moistened extend themselves, and appear numerously jointed. All the florets in this plant are fertile. Achenia without pappus, obovoid, compressed, four-angled, a little pilose, the central angles much less salient. Receptacle conic, covered with elevated points, on which the seeds have been seated.

HAB. Pueblo de los Angeles, Upper California. Flowering in April.

ACHYRACHÆNA.

A. MOLLIS. A small slender annual, bearing a terminal and sometimes two or three lateral capituli; root leaves smooth, the rest linear-lanceolate, sparingly toothed, attenuated below into a longish peduncle, covered sparingly with a silky pubescence. The involucrum of six lanceolate silky leaves, embracing the three-toothed radial yellow florets nearly to their summit; the inner scales of the involucrum ten to twelve, lanceolate, and membranaceous nearly to their summits. Radial florets with long exserted styles, and filiform, rather acute stigmas. Achenia of the ray without pappus, those of disk numerous, elongated, narrow and compressed, with ten rather scabrous ribs. Pappus of the discal florets very long, convolute in two series of about eight to ten scales, the outer shorter, all eroded and truncated at the apex. One of the true MADIEÆ, and in some respects allied to *Lagophylla*, in the involucrum palea and rays, and to *Anisocarpus* in the chaff of the discal florets.

HAB. Pueblo de los Angeles, Upper California. Flowering in April.

ERIGERON.

E. *STENOPHYLLUM. Nearly smooth, stem even and cylindric, corymbose at the summit; leaves filiform, rather numerous and scattered, minutely scabrous; involucrum about three series, scales linear-lanceolate, acute; rays numerous, elongated, (thirty or more,) two to three toothed; pappus fulvous, scabrous, with an outer short white series; achenia nearly smooth and compressed.

Two to three feet high, with a very smooth cylindric stem, and numerous scattered filiform leaves; flowers white and rather large, (about the magnitude of the common Daisy,) branchlets sometimes more than one-flowered, corymb of about seven to ten branchlets.

HAB. In California, (Monterey?)

E. FOLIOSUM. Rays narrow and very long. Achenium rather hirsute towards the summit. Corymb with about seven to nine heads. A true species of *Erigeron*.

HAB. Monterey, California.

CHÆNACTIS.

C. *DENUDATA. Biennial; glandularly pubescent; peduncles exceedingly long; involucrum viscidly pubescent, rather tomentose; scales linear-lanceolate; ray-flowers irregular, expanded, shorter than the disk.

Very nearly allied to *C. lanosa*, but with a distinct habit. Apparently a very large species, with nearly naked peduncles more than a foot long, occasionally only bearing only one or two simple leaves. The leaves are pinnately parted, on slender petioles, with three or four segments on a side. Flowers yellow, rather large, the rays very evidently lobed. Achenia black, narrow fusiform, nearly glabrous, with a pappus of about four lanceolate slightly lacerate scales.

HAB. Pueblo de los Angeles, Upper California.

DIETERIA.

§. SIDERANTHUS. Involucrum hemispherical, the scales linear and acute; achenia obovoid and compressed, in the young state with numerous striatures, at length covered with a silky villus; pappus of several series of unequal scabrous bristles, the outer series shorter and more slender, (those in the ray, as in the rest of the genus, much shorter and less numerous.) Biennial or perennial, leaves pinnately lobed or incised; the lobes ciliated or pointed with bristles. Receptacle fimbrillate or chaffy. Flowers of one color.

D. SPINULOSA. NUTT. in Trans. Amer. Phil. Soc., l. c. p. 301. *Sideranthus spinulosus.* NUTTALL in Fraser's Catalogue, (1813.) *Amellus? spinulosus.* PURSH. Flor., v. ii. p. 564, (from the specimen which I gave to Mr. Lambert.) TORREY, Ann. Lyc. N. York, ii. p. 213. *Starkea? pinnata.* NUTT. Gen. Am. ii. p. 169. *Diplopappus pinnatifidus.* HOOK. Flor. Bor. Amer. ii. p. 22. *Aplopappus spinulosus.* DECAND. v. p. 347. TORREY & GRAY, Flor. Am. ii. 240.

D. RUBIGINOSA. *Aplopappus rubiginosus.* TORREY & GRAY, Flor. Am. ii. p. 240.

D. *GRACILIS. Biennial, erect; stem pilose, branched above, the one-flowered slender branchlets forming a fastigiate corymb; lower leaves pilose, pinnatifid; the segments oblong, obtuse, upper leaves linear, simple and sessile, entire, or minutely toothed, strongly ciliated with slender white bristles, which terminate all the lobes of the leaves; involucrum not viscid.

A slender biennial, with a fusiform, simple root, about eight to ten inches high. Radical leaves very hairy, pinnatifid, attenuated with slender petioles, little more than an inch long. Branchlets rather long and slender, often forked; each of the slender branchlets one-flowered; stem leaves linear, very elegantly ciliated, by white pellucid bristles about a line long. Heads hemispherical; the scales of the involucrum in about three series, acute, rays fifteen or sixteen, with a much shorter and less copious pappus than the discal florets. Discal florets narrow and cylindric, with very small teeth. Stigmas pubescent, lanceolate, with filiform terminations. Pappus bright brown, by transmitted light orange or flame red, in two series, or of two kinds, some of the scabrous bristles being two or three times as thick as the others, which are shorter, and appear to be an outer series. The receptacle is covered with rather long white acuminate palea. Achenium obovate, compressed, at first multistriate; at length the ribs are hidden with a silky villous.

HAB. Near Santa Fé, (New Mexico.) Flowering in August.

MICROPUS.

M. *HETEROPHYLLUS. Annual, erect, simple, slender; densely lanuginous above, tomentose below; leaves below linear acute, above lanceolate, obtuse and sessile; capituli lateral and terminal, more densely lanuginous; discal florets about five, masculine three to five.

Very nearly allied to *M. angustifolius*, but the heads appear larger and more wooly, and the upper leaves are different.

HAB. Santa Barbara, Upper California.

POLYPAPPUS.

P. *SERICEUS. Shrubby; younger branches and leaves sericeous; branches very leafy, ending in small corymbose clusters of flowers; leaves lanceolate-linear, one-nerved, entire, acute, at length nearly smooth; achenia smooth.

A rather large shrub, the branches striate and terete, rather whitely pubescent. Leaves alternate, one to one and a half inches long, one to two lines wide, crowded together so as to hide the stem. Involucrum small, tomentose, campanulate, the scales ovate in several series, the inner lacerate on the margin. Flowers (in the only imperfect specimen I have seen,) apparently male. Receptacle flat and naked. Rudimental achenia smooth and subcylindric, with five striæ, and terminated by a pappus of about ten rather unequal thickly clavellated hairs. Bitter and astringent to the taste.

HAB. Rocky Mountains of Upper California.

BULBOSTYLIS.

§. *Psathyrotus.† **Annual, and dichotomously branched; involucrum of a nearly single series of loosely imbricated, slightly striated scales; pappus short and scabrous, shorter than the florets: style not bulbous; achenia turbinate, densely villous.**

B. *annua. **Very dwarf and dichotomously branched, clothed everywhere with greenish furfuraceous scales, and somewhat viscid; leaves cuneate-obovate, toothed at the apex; flowers nearly sessile, crowded into an irregular corymb.**

Flowers ochroleucous, twenty or more florets in the oblong involucrum, scales few, linear-lanceolate, the innermost chaffy. Receptacle small, naked, branches of the style filiform, obtuse, included. Pappus brownish, not very copious, and short. Plant about four or five inches high.

Hab. Rocky Mountains, near Santa Fé.

QUERCUS.

Q. *gambelii. **Leaves obovate, shortly petiolate, narrowed below, sinuately lobed, dilated and somewhat three-lobed at the summit, beneath pubescent, the lobes rather obtuse, the upper ones subdentate; fruit sessile, small, the cup hemispherical, scales ovate-acute; the glande ovate and acute, about half immersed in the cup; the conic summit short.**

With the aspect of our northern oaks, but very distinct; in the leaf approaching a little to *L. obtusiloba*, but without any near affinity.

Hab. On the banks of the Rio del Norte, but not abundant.

OROBANCHE.

O. *multiflora. **Pubescent; branching from the base; flowers subimbricated, scales lanceolate-acute; peduncles very short; flowers purplish, recurved; calyx deeply five-cleft, bibracteate at base; segments long and linear; anthers tufted with hairs.**

Eight or nine inches high, and very robust, branching from the base. The whole plant clothed with short soft hairs. Scales lanceolate and acuminate. Calyx deeply five-cleft, the segments long and linear; two long bractes immediately beneath the calyx. Corolla pubescent, pale below, the border purplish blue, upper lip bifid, the lower trifid, segments short and oblong. Anthers whitish, with tufts of white hairs above, shortly awned at the base. Seeds minute and numerous, light brown, covered with impressed punctures.

Hab. Sandy ground along the borders of the Rio del Norte. Flowering in September.

† In reference to the extreme fragility of the branches.

GYMNOCAULIS.

G. FASCICULATA. *Orobanche* (*Gymnocaulis*) *fasciculata.* NUTT. Gen. Am. ii. p. 59. Since this name was proposed, ENDLICHER, in his great work on the Genera of Plants, has founded his genus ANOPLANTHUS on the original congener of *Gymnocaulis uniflora*, which in the Genera I altered to *G. biflora*, as being the true state of the inflorescence; it ought, however, notwithstanding, to prevent greater confusion, to remain *G. uniflora.*

ASCLEPIAS.

A. *MACROPHYLLA. Stem erect and smooth; leaves verticillate in threes or fours, very long and smooth, linear-lanceolate, below and on the branches opposite, on very short petioles; peduncles shorter than the leaves; umbels and flowers rather small and smooth; lobes of the corolla oblong-ovate; process of the nectaries strongly curved, acute; stype of the nectaries rather short.

About three feet high. Leaves near a span long, very distant. The first pair opposite, as well as the upper, and those on the branches. Flowers small, greenish-white, with some brown, very much like those of *A. verticillata*, to which it is allied, though remotely.

HAB. Near Monterey, Upper California.

STANLEYA.

S. *FRUTICOSA. Smooth; leaves lanceolate, entire, or sparingly denticulate, attenuated into a longish petiole; lamina of the petals longer than the claws; stipe more than twice the length of the pedicel.

A shrubby species, with flowers very similar to those of *S. pinnatifida.* Leaves two to two and a half inches long, less than half an inch wide, the uppermost linear, all thick and apparently succulent.

HAB. Rocky Mountains of California.

BARTONIA.

B. *MULTIFLORA. Biennial? stem smooth, white and shining, corymbosely branched; leaves narrow-lanceolate, sinuate, pinnatifid, attenuated below and sessile; flowers subtended by one or two linear bractes; petals ten, oblong oval, obtuse; capsule urceolate, with three to four valves; segments of the calyx long and subulate; seeds in a double series, winged.

About two feet high, dichotomously and numerously branched. Flowers corymbose, terminating the branches, three or four together, but distinct, rather small. Petals about three-fourths of an inch long, apparently straw-white, as in *B. ornata*, the inner smaller. Calyx with very long, subulate points. Capsule urceolate, rather large for the plant; three-fourths of an inch long and two or three lines wide. Style elongated, filiform, placentas succulent, the seeds thickish, and with a winged

margin, pale brown. Leaves rather narrow, and rough, as usual; two to three inches long, narrowed below, about half an inch wide.

HAB. Sandy hills along the borders of the Rio del Norte. Santa Fé, (Mexico.) Flowering in August.

NICOTIANA.

N. *CAUDATA. Annual; leaves lanceolate, sessile, acuminated with very long caudated points; flowers conglomerated in a terminal panicle upon short peduncles; segments of the calyx and corolla much acuminated.

With a very extraordinary character, still closely allied to *N. tabacum*. The lower lanceolate leaves are not less than eighteen inches long, with slender acuminated points in addition, of five or six inches in length. Segments of the calyx pubescent, and viscid, lanceolate, and much acuminated. Corolla pale red, with a long, slender, viscidly pubescent tube, more than an inch in length.

HAB. Near Monterey, Upper California.

SAMOLUS.

S. FLORIBUNDUS, (Kunth.) Santa Barbara.

SIEVERSIA.

S. PARADOXA. Don. Lin. Trans. v. 14, t. 22. f. 7—10. *Fallugia*, (Endlicher.) Gen. No. 6385.

A common straggling bush, four or five feet high, with very showy racemes of bright yellow flowers. Dr. Gambel states that the branches are collected by the inhabitants and tied together for the purpose of making brooms. Flowers in July and August. Not sufficiently distinguishable from *Sieversia*, and ought to form a mere division in that genus.

HAB. Santa Fé, New Mexico.

ERIODYCTION.

E. *ANGUSTIFOLIUM. Stem and younger leaves glutinous; leaves long, linear, entire, revolute on the margin; beneath canescent and reticulated; flowers small, in paniculate cymes; sepals linear, somewhat hirsute.

Allied to *E. glutinosum*, but with much narrower leaves. Flowers (apparently small,) disposed in a panicle near a foot in length; the branches terminating in bifid or trifid conjugate spikes or cymes. Leaves linear, crowded, three or four inches long, entire, one to two lines wide; when young very glutinous above. Calyx small. Capsules small, ovate, containing very few seeds.

HAB. On the Sierra of Upper California; not seen in flower.

HUMULUS.

H. *AMERICANUS. Leaves three to five-lobed, the upper sometimes entire; inner divisions lanceolate-acuminate, denticulate along the apex; scales of the cone ovate, acute, the lower ones acuminate.

I have ventured, as I think on sufficient grounds, to separate the American from the European hop. Found as it is, in the uncultivated interior of the continent beyond the reach of inhabitants, our plant must necessarily be indigenous. I have compared the present with the foreign plant with some attention, and I can in all cases readily distinguish them by their foliage. In the American plant, whatever be the other variations of the leaf, the *attenuated* points are denticulated nearly to the extremity. In the European the summit of the leaf is abruptly toothed. In the native plant, the male flowers appear to be smaller; and the scales of the cone are likewise acuminate. In some specimens, as in the European plant, the upper leaves are simply cordate, and entire, but in all cases the denticulations are smaller, and more numerous.

Mr. James Read, who has long ardently studied the botany of his own country, after a distant voyage, has presented to the herbarium of the Academy of Natural Sciences, among many other curious plants of China, a small male specimen of the hop of that country, collected near Canton: and this also appears to be a form sufficiently distinct again from the European hop. From its strong armature it might be called HUMULUS *ACULEATUS. The young stems and petioles are very sharply aculeate; the uppermost leaves are all palmate, five-lobed, and hairy along the ribs; the segments of the pubescent calyx are lanceolate.

HAB. Throughout the United States in alluvial situations. I have also most luxuriant specimens from the borders of streams in the Rocky Mountains, near the line of New Mexico, collected by Dr. Gambel.

PECTOCARYA.

P. PENICILLATA. Very common round Santa Barbara and other parts of Upper California. Often scarcely distinguishable from *P. chilensis*, except by the smaller fruit, the margin of which, as in *P. chilensis*, is not unfrequently pectinately bristled the whole length; they are all, therefore, little more than varieties of each other. The plant I referred to *Cynoglossum pilosum*, (Gen. Am. i. p. 114,) is a true *Myosotis* wholly distinct from either the present plant or that of Peru. More than seven years back, I had formed a genus for this plant, (STAURINA,) of which I deposited specimens in the Herbarium of the Academy of Natural Sciences in Philadelphia. In our plant, the stigma is capitellate and emarginate, the seed cuneate-oblong, and the radicle inferior or pointing towards the style.

MONARDA.

M. *PECTINATA. Biennial? slightly pubescent; leaves oblong-lanceolate, denticulate, shortly petiolate; capituli proliferous, rather small, subtended by herbaceous bracts, some of them purplish, ovate-acute, strongly ciliated, as well as the elongated setaceous teeth of the calyx; corolla widely ringent, the tube scarcely exserted beyond the calyx.

Nearly allied to *M. punctata*, but with very different bractes, leaves of the same form and full of resinous punctures. The flower appears to have been pale purple and spotted.

HAB. Near Santa Fé, New Mexico.

HEDEOMA.

H. *CILIATA. Perennial; minutely pubescent, branching much from the base; leaves linear-obtuse, shortly petiolate, entire; flowers, two or three together in the axils; calyx hirsute, with long, unequal ciliate teeth; corolla about the length of the calyx.

About four inches high, very much branched, with at length a woody root. Allied to *Micromeria glabella*, but with smaller and entire leaves, and with the calyx of *M. hirta*. (*Hedeoma hirta.*)

HAB. Santa Fé, New Mexico.

SISYMBRIUM.

S. *REFLEXUM. Smooth; leaves somewhat lyrate-pinnatifid, the terminal lobe toothed, upper leaves nearly entire and denticulate; flowers small; petals linear-spathulate, a little longer than the coloured calyx; pods subterete, very long, nearly sessile, rigidly reflected and acuminated with the style.

A rather stout species, about two feet high, with the silique an inch and a half long. It bears some affinity to *Hesperis pinnatifida* of Michaux, but the seeds are terete and not margined, and the pods slightly compressed and not torrulose.

HAB. Near San Pedro, Upper California.

URTICA.

U. *HOLOSERICEA. Perennial and tall; leaves opposite, large, on long petioles, cordate-ovate, acute, above lanceolate, coarsely serrated, smooth, beneath silky villous, as well as the stems and petioles, the latter also pilose; flowers tetrandrous; in axillary, filiform, compound racemes; the upper clusters styliferous only.

A tall species, resembling *U. procera* but monoicous, and with the large leaves almost whitely villous beneath with a soft down, amidst which, however, on the stem are the usual long hispid hairs, some of the leaves are a span long without the long petiole. Male calyx four-parted, the female four-parted with two of the segments minute. Fruit ovate, pale brown and shining.

HAB. Near Monterey, Upper California.

APIUM.

A. GRAVEOLENS. (Celery.) Marshes on the coast of Santa Barbara. (Dr. Gambel.) This useful plant, common to all the salt marshes of Europe, is now also found to be indigenous to the west side of this continent.

PEUCEDANUM.

§. *Peucelimum. Carpels with two of the lateral ribs undulately winged; vittæ indistinct, one or two; commissure ———.

P. *abrotanifolium. Somewhat pubescent, branching from the base; leaves ternately decompound, ultimate segments narrowly linear; involucels about seven to nine-leaved, the leaflets palmate, distinct, petiolulate, nearly as long as the umbellet; fruit obovate-elliptical, with a broad, winged margin, and some of the inner ribs with undulated membranaceous margins.

Like many other plants of this family, there is so striking a resemblance betwixt the present species and the *P. caruifolium*, that at first I imagined them to be the same, yet the character of the involucrum and the fruit is so wholly different, indeed, from the rest of the genus, as to require a particular section. The present is also a much larger plant than *P. caruifolium*, eighteen inches to two feet high; the leaves multifid, with narrow linear acute segments; petioles very short with an inflated base. The plant branching from the base into two or three divisions, umbel subtended in the two instances out of three with a proper multifid leaf; rays of the umbel ten or fourteen, with several short abortive or masculine umbelets in the centre of the umbel; several abortive flowers in each umbelet. Flowers yellow.

Hab. Pueblo de los Angeles, Upper California. (A single specimen, not far enough advanced to ascertain the ultimate character of the fruit.)

PTEROCHITON.

P. canescens. In fruit. *P. occidentale.* Torrey in Frem. Journ. p. 318. *Calligonum canescens.* Pursh. Flor. Am. ii. p. 370, excluding the synonym *Atriplex canescens.* Nutt. Gen. Am. i. p. 197.

This plant in several collections to which it was communicated, was marked *Pterocarya canescens*, as far back as 1836. At the same time I marked in the collection of the Academy of Natural Sciences and elsewhere, the "Pulpy-leaved Thorn" of Lewis and Clark, by the name of "Sarcacanthus," the *Sarcobatis* of Nees, and *Fremontia* of Torrey; by the names so marked I intended to have published these plants. Pursh's *Calligonum*, which I mistook for my *Atriplex canescens*, must have been in the collection of Lewis and Clarke, as I did not meet with it on the borders of the Missouri. In the same journey I collected very perfect specimens of the plant since called *Grayia*, which I marked in the collection of the Academy *Psilocarpus*.

Hab. In the Rocky Mountains of California abundant, and also towards the sources of the Platte, where it forms a shrub three or four feet high.

*PHORADENDRON.†

P. CALIFORNICUM. Leafless; stem and elongated branches terete; sheathing scales bifid, segments ovate acute; berries round and few, opposite, sessile in marginal cup-shaped receptacles.

Branches a foot or more in length, sometimes dichotomous by abortion, but with the branches or branchlets usually opposite. Male spikes very short, as well as those of the female; the scales a little pubescent and acute, nearly two-parted on the stem. The first pair of scales on the male spike, subtends six flowers, or two on a side. Berries white? and small, sessile in cup-shaped depressions of the rachias, the summit of the berry marked with the small three-cleft divisions of the acute calyx. Petals none.

HAB. In the mountains of Upper California. Parasitic on the trunks and branches of a *Strombocarpus*.

This plant agrees exactly in its character with *Viscum flavescens*, and these, with several other American species, ought to constitute a genus distinct from the *V. album* of Europe; distinguished by the ordinary distinct two-celled anthers of the male flowers, which are globular, mostly trifid, rarely bifid or quadrifid, the anther opens by two large terminal pores or foramina, and without filament, is attached to the sides of the three-sided torus at the base of the calyx, the anther only being free. In the female there is no vestige of corolla, a persistent calyx of three, rarely four minute triangular clefts, adhering to the summit of the globular or ovate berry; the style is extremely short, almost sessile in the centre of a triangular fleshy disk, which also as well as the style exists in the male flower. These plants appear to be wholly American, extending from the State of Delaware to the tropics, and to a very considerable distance through the southern hemisphere; branches usually opposite or verticillate, rarely aphyllous.

To this genus I would refer the present plant *P. californicum*, the *Viscum flavescens*, *V. villosum*, *V. trinervium*, *V. buxifolium*, *V. saururoides*, *V. tereticaule*, *V. martinicense*, *V. crassifolium*, *V. leptostachyum*, *V. perottetii*, *V. brachystachyum*, *V. rubrum*, *V. berterianum*, *V. schottii*, *V. macrostachyon*, *V. piperoides*, *V. angustifolium*, *V. affine*, *V. ensifolium*, *V. retutinum*, *V. interruptum*, these and most of the other American species will probably arrange with the preceding in this genus. The *V. stellatum* of Nepal, which I have examined, appears to be a true congener with the *V. album*, as well as *V. orientale*, though in the latter I have found but two adnate anthers, to four petals. A true *Viscum* also appears to exist in China near Canton.

† From φωρ *a thief*, and δενδρον *a tree*; in allusion to their parasitic habit.

The present genus is well distinguished by the free anthers, which are one-celled opening by wide pores near the summit; and by the total absence of the annular calyx and petals, the calyx being monophyllous, its base including the berry, and its three or four-toothed connivent border, which never opens, remaining persistent on the summit of the berry.

In all the American species, the flowers are produced with the ripening of the berry on the lower part of the stem, so that their growth continues for the whole year. The flowers, very minute, are usually sessile or partly immersed in the rachis of a cylindric spike, which resembles a catkin, but differs in having the flowers disposed in interrupted clusters; these spikes come out several from the same axil; the inflorescence is never terminal.

*CALYCODON.

Spikelets one-flowered, the flower sessile, bearded at the base. Glumes two, unequal, shorter than the flower, membranaceous, the lower truncate, acutely three-toothed; the lower smaller, one-toothed. Paleæ two, the lower sublanceolate, carinate, terminating in a longish scabrous awn; at length indurated, with a silky pilose margin; the upper palea lanceolate, one-nerved, indurated and involute. Anthers three. Stigmas two, plumose.—A scabrous leaved grass, with a simple inarticulated culm, terminated by a loose, narrow, somewhat spiked panicle. So called in allusion to the remarkable toothing of the calyx.

C. *MONTANUM. Leaves short and narrow, somewhat scabrous; ligules membranaceous, elongated; panicles four or five inches long, narrow, with the branches appressed; flowers clustered on the branches, three or four together, some nearly sessile and others pedicellate; glumes variable, membranaceous and eroded at the summit, the lower three-nerved, with three either short, or rather long and acute teeth, sometimes with a fourth membranous tooth; the upper glume also eroded, and ending in a single tooth from the nerve; the lower palea lanceolate, carinate, scabrous, and indurated, terminated by a long, slender, scabrous awn; the inner margin silky, with soft shining hair, of which there are two tufts at the base of the paleæ; the inner paleæ also indurated and herbaceous in the centre, involving the germ and stamens.

A perennial grass, with a simple, unjointed culm, about eighteen inches high. Somewhat allied to *Muhlenbergia*, (when restrained to its proper limits,) but perfectly distinct by its very remarkable glumes. The ripe seed we have not seen.

HAB. In the Rocky Mountains, near Santa Fé, Mexico. Flowering in August.

MUHLENBERGIA.

M. (§. TRICHOCHLOA) *PURPUREA. Annual, dwarf; much branched from the base and many-jointed; glumes very short and obtuse; palea and awns purple, the latter capillary, many times longer than the palea, the inner one acute and shortly awned.

About a span high. Leaves and sheathes minutely puberulous. Leaves short and narrow. Panicle spreading; flowers very deciduous. Glumes minute, unequal and obtuse, membranaceous, with from one to four nerves. Paleæ dark purple, the lower somewhat carinate; pilose at base, terminating in an arachnoid purple awn, about an inch in length; the upper palea also purple and indurated, its two nerves often ending in two short awns.

HAB. Santa Barbara, Upper California, and the island of Santa Catalina.

CALAMAGROSTIS.

§ *TRICHAGROSTIS.—Spikelets one-flowered, the flower sessile, with long hairs at the base. Glumes two, subequal, membranaceous, acute, longer than the flower, the lower with a short terminal awn. Paleæ two, very acute, the lower carinate, ending in an exserted capillary awn; the upper one-nerved, acuminate. Caryopsis free, cylindric-oblong, much shorter than the glume.

C. *ANDINA. A simple stemmed small grass, with a compressed culm, about two or three feet high; ligules minute; flowers in a short, paniculate, narrow spike, about three or four inches long, half an inch wide, with a habit very distinct from the general character of the genus; glumes very long and slender, each with about a single nerve; very narrow and membranaceous; one of them distinctly awned, the other acuminate; pappus copious, longer than the small flower; no lateral rudiment of another flower.

HAB. In Upper California, on the Colorado of the West.

FESTUCA.

§ *CHLOROPSIS.—Spikelets unilateral, two-flowered, or with the third abortive; hermaphrodite, distichal. Glumes two, carinate, unequal. Paleæ two, the lower lanceolate, hirsute and concave, ending in a long, slender awn; the upper bicarinate. Stamens one. Ovary sessile. Styles two, very short, with plumose stigmas. Caryopsis lanceolate, smooth, concave above, nearly free.—A slender Californian annual grass, with a simple filiform culm, ending in a small, nearly simple, spiked panicle; the spikelets sessile on a continuous, angular rachis, at length cernuus. So closely allied to the CHLORIDEÆ, that at first I imagined it would prove a species of *Eutriana;* it is still, however, a *Festuca* in habit.

F. *MICROSTACHYS. A slender pubescent grass, about a span high, upper part of the rachis simply spiked, the lower part, with two or three similar branches; rachis and paleæ hirsute; glumes, the lower three-nerved, the upper one-nerved; awn of the paleæ about twice its length; caryopsis large, filling up the palea.

HAB. Pueblo de los Angeles, Upper California.

§. *Trachycarpha.—Spikelets many-flowered, secund, seated on the sides of a branching angular rachis. Glumes two, the upper minute. Paleæ two, the lower with a long awn and strongly ciliated on the margin. Caryopsis adhering to the upper palea.

F. *megalura. Slender leaves and elongated, simple culm, smooth; panicle spiked, elongated, the branchlets angular and appressed; paleæ and their long awns very scabrous; uppermost floret of the spikelet abortive.

Annual, slender below, more robust above, about eighteen inches high; spikelets so appressed as to appear blended together, erect, seated on a sharply angular rachis; awn about three times the length of the palea, which is very strongly ciliated along the margin.

Hab. Santa Barbara, Upper California.

MELICA.

M. *panicoides. Panicle elongated, many-flowered, the flowers small and numerous; glumes one-flowered, with a small, infertile rudiment; paleæ smooth, scarcely longer than the acute glumes.

A smooth, rather slender grass, two to three feet high. Leaves linear and narrow, with long acuminated points; ligule short, obtuse, membranous; panicle eight to ten inches long, with several subdivided branchlets below, nearly simple above; flowers scarcely larger than those of *Panicum virgatum*, but with shining, yellowish glumes, and purple paleæ. The glumes lanceolate, ovate and acute, the lower a little longer; paleæ ovate, rather acute, the neutral rudiment two-valved, white and small. Stamens three. Styles two. Stigmas white and complicated, plumose. Caryopsis obovate, sessile, free, with a flat basal impression or cicatrice.

Hab. Santa Barbara. Flowering in April.

M. *poæoides. Panicle narrow, many-flowered, the spikelets erect; spikelets with two flowers perfect, and a small rudiment extending beyond the acute glumes; lower palea five-nerved.

Two to three feet high, smooth; the leaves narrow and rather short, with longish membranous lacerated stipules, a little hairy below. Panicle narrow and interrupted, several unequal branchlets from a joint. The spikelet parti-colored and a little shining as usual, but exceeding the glume it appears somewhat like a Poa. Lower glume acute, brownish at tip, with a broad yellowish membranous margin. Outer palea oblong-lanceolate, a little obtuse with a brownish tip. Stamens three. Stigmas plumose, short.

Hab. Island of Santa Catalina, California.

*STENOCHLOA.

Spikelets about three-flowered; flowers distichal, hermaphrodite. Glumes two, awnless, lanceolate, acute, much exceeding the spikelet in length. Paleæ two, awnless, the lower concave, ovate, nearly nerveless and pubescent; the upper bicarinate. Stamina three. Ovarium stipitate. Styles two. Stigmas plumose. Caryopsis free, oblong-lanceolate.

S. *CALIFORNICA. A smooth, many-jointed, annual, small grass, without branches, about a foot high; leaves linear and attenuated into long points; ligules membranaceous, small; panicle narrow with the small branches appressed. Glume green, and smooth, very long, extending beyond the included spikelet; the lower valve lanceolate-linear, very acute, membranaceous on the margin, obscurely three-nerved; the upper narrower, one-nerved; paleæ ovate, obtuse, the lower silky pubescent, nearly nerveless, the upper with a nerve on either margin; anthers whitish.

Nearly allied to *Poa*, but with the glume almost of *Danthonia;* the palea also nerveless, not carinate, and without the arachnoid connecting pubescence at the base.

HAB. Island of Santa Catalina. Coast of California.

*PLEOPOGON.

Spikelets one-flowered. Glumes two, unequal, nearly as long as the flower; the lower with two awns, the upper entire, with one awn. Paleæ two, the lower oblong, with the apex produced into a short awn, the upper without awn, and two-nerved. Stamens three. Styles two. Stigmas pilose, slender. Culm compressed, somewhat branched; leaves linear, short and rigid; spikes terminal, simple, not jointed.

P. *SETOSUM. Leaves very narrow and acuminated, rather rigid; ligules membranaceous, acuminated; glumes somewhat membranaceous, the lower terminating with two longish scabrous awns, often rather unequal in length, the upper not cleft, terminating with a single awn; the lower paleæ rather lanceolate, purplish and somewhat oblique, entire, terminating in a shortish twisted awn; a line of pubescence along the sides of the glume; the upper glume membranaceous, two-nerved.

A slender grass, about eighteen inches high, with a flattish jointed culm. Allied apparently to *Lycurus*, but the flowers are all hermaphrodite.

HAB. Mountains of Santa Fé, Mexico.